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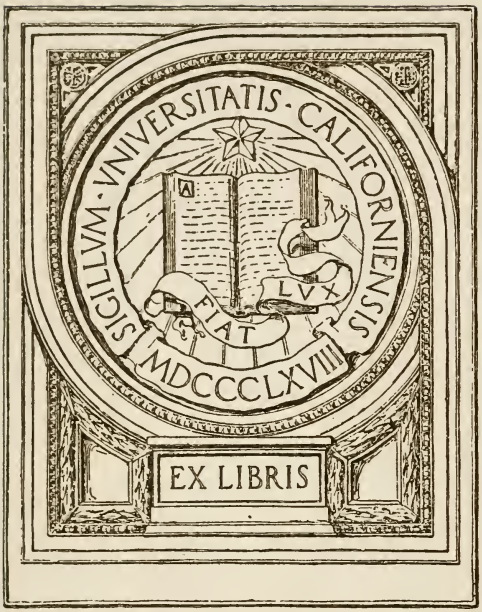
MEDICINE OLD AND NEW

Introductory Address
at
Saint George's Hospital

BY
W. HOWSHIP DICKINSON, M.D.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MEDICINE, OLD AND NEW

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OLD AND NEW

An Introductory Address

Delivered on the occasion of the Opening of the Winter Session 1899–1900 *at St. George's Hospital Medical School on Oct. 2nd,* 1899

BY

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LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK AND BOMBAY
1899

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ADDRESS

GENTLEMEN,—In the present day more ways of employing life are open to an Englishman than ever before presented themselves. English commerce traverses every sea; all round the world men of our race stand on the frontier of civilisation and impart to the surviving aborigines their drink, their expletives, and something of their knowledge of firearms. Putting aside a thousand roads to competence or fortune which the nineteenth century offers to the Anglo-Saxon I will touch only upon the services and the learned

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professions. The army and navy may be briefly though respectfully dismissed. A calling of which the purpose is to destroy life appeals less to the sympathies than one of which the aim is to save life, though we must unwillingly admit that our efforts to destroy are more constantly successful than our efforts to save. As to the 'three sisters of old'—Law, Physic, and Divinity—I think that those have done well who have decided to attach themselves to the medical member of the family. I tremble to touch on Divinity, but may at least say this: among the purblind race of miserable men are many whose narrow field of vision is better fitted to comprehend natural knowledge than supernatural, the finite than the infinite. Such have

chosen wisely who have found their employment in medicine. With this the Law compares unfavourably in this respect. Medicine is wholly beneficent, at least in intention. The opponent is disease and is always in the wrong. The advocate is bound to a side which may not be that of justice. His endeavour may be to make the worse appear the better cause. The process is on the whole useful; truth may come out by contention; but yet it must be allowed that if one counsel is right the other must be wrong, and may be doing his best in the cause of iniquity. No such partisanship directs the efforts of the physician; if he is confronted with another it is in order that both may work together against the common enemy. All rejoice in

his success and agree in lamenting his failure.

Our purpose is nothing less than the good of the human race. Our ideals are as lofty as are permitted to man, but endeavour is one thing and accomplishment another. If we look at what has been achieved we shall find that that is little compared to what is to be hoped for. Our retrospect will take us through the valley of humiliation; let us hope that at last we may discern some glimmer of the lights of the desired haven.

Forty centuries have brought us indeed a cornucopiæ of drugs, while they have presented to our view a doleful procession of theories which were erroneous and practices which were injurious. The past abounds

with warning and suggests the melancholy reflection that our ancestors would on the whole have lived longer had they had no physicians among them. 'We may lay it down as an axiom,' says Addison, 'that when a nation abounds in physicians it grows thin of people'; and in another place he founds a practical suggestion on this rule. 'I must confess,' says he, 'for the good of my native country I could wish that there might be a suspension of physic for some years, that our kingdom, which has been so much exhausted by the wars, might have leave to recruit itself.' Literature abounds with sarcasms directed against our profession, and it must be allowed that in the last century, and especially in the earlier part of this, they were by

no means without justification; but we may trust that few, and those only the most harmless, are applicable at the present day.

The practice of our ancestors, mostly injurious, was actuated by faith as fervent as ever comforted a martyr, though here the faith was in one person and the martyrdom in another. Nature is much-enduring. No sort of treatment excepting that employed by the law kills everybody. Those who survived were thought to have been cured; the patient was grateful to the physician who did his best to kill him; and the physician, 'bold in the practice of mistaken rules,' looked upon himself as a public benefactor when he was no better than a public nuisance. Now the old faith has gone from us, or has

been transferred from Art to Nature, and medicine has become a comparatively harmless occupation. A few superstitions still remain, but they are less exacting and unreasonable than once they were.

'The old order changeth, yielding place to the new.' But the old order has not quite passed away nor the new fully arrived. We are in a period of transition. Medicine is ceasing to be empirical and becoming scientific. The reign of science has not yet been completely established, but it casts its shadow before; and we may look forward to a time when the physician, already deprived of half his terrors, shall be as beneficent in act as he always was benevolent in intention.

Up to recent times the progress

of medicine has been irrational and unscientific, not always contrary to reason and science, but not necessarily guided by them. First came the accidental discovery that certain vegetables and minerals produce certain effects on the human body. This mode of enlightenment dates from the earliest times, is common among savages, and is in vogue with those who do not so regard themselves. To this we owe opium, cinchona, colchicum, digitalis, mercury, iodine, and, indeed, most of the drugs which we could least spare. Some of them we term 'specific,' a word which in itself is a confession of ignorance. As to most of them we know little more than that they produce certain effects, we do not know how. How they were found out so

to do is a mystery—not by any process of scientific deduction, probably largely by haphazard experiments, directed, if at all, by erroneous theories; but empirical as was the system, if system it may be called where system was none, it was not unfruitful; it has been at work from remote antiquity and it would be strange if among the accumulations of many ages and many countries there were not some things worth retaining. Much has been discarded.

> Time hath, my lord, a wallet at his back
> Wherein he puts alms for Oblivion.

That wallet is stuffed with unsavoury drugs—dead men's skulls and all uncleanness, mummy powder, foxes' lungs, blackbirds' dung, and other repulsive objects, but not all repul-

sive, for we discern among them the eyebright, whose resemblance to the human eye declared its use in diseases of that organ, and the red rose, a sovereign remedy for hæmorrhage. But Oblivion has not grasped everything. Much has escaped and been handed down to our refined and critical age. The empirical use of medicaments so obtained formed the greater part of pre-scientific medicine. By empirical I mean, as the dictionary has it, 'practised only by rote, without rational grounds.' But let us not be ungrateful to our forefathers because we have acquired methods which we think superior to theirs. The debt which medicine owes to empirical therapeutics must be acknowledged as long as medicine is practised.

But if the medicine of former days was largely empirical or irrational, not so was surgery. Surgery as compared with medicine is a rude and simple art. If an eye offend thee, pluck it out; if there be a tumour, eradicate it; if a bowel be strangulated, cut the bonds; if there be a collection of pus, make a hole for its escape. All this is simple, but it is eminently scientific. The fundamental mischief is recognised and intelligently dealt with. Hence it comes that most of our successes have up to a recent date belonged to the department of surgery. I say most, not all, for vaccination—perhaps the greatest of them—must be regarded as a matter of medical reasoning rather than surgical manipulation. To this I shall return.

The advances of modern medicine may be considered under three heads :

1. We have learned that many of the processes which constitute disease cannot be controlled by drugs ; they run their course regardless of pills, potions, and plasters, and cannot be brought to an end by such means except it be to an untimely one.

2. We have learned to enlist in our service the influences of external nature and with their aid are able in certain diseases to secure results which to more narrow therapeutics were impossible.

3. We have learned to trace many diseases and morbid conditions to minute organisms which were not only unknown to our forefathers, but

impossible to be known by them, because they did not possess the instruments necessary to their detection. We may carry a pestilence in a test tube and the means of destroying the army of Sennacherib in a waistcoat pocket. But these malign creations have a redeeming quality, for some of them are protective against themselves, while others are capable of indirectly generating their own antidote and curing the mischief themselves have caused. To each of these lines of progress I must briefly revert.

First, as to the respect due to Nature, and the wisdom of not meddling where we are likely to mar. Great is the *vis medicatrix Naturæ*. In how many disorders where our ancestors tried to cure are we con-

tent to wait for recovery! I can recall the old ferocious and fallacious treatment of pneumonia with bleeding and blisters, calomel and antimony, and wonder alike at the assurance of the physician and at the patient's tenacity of life. The swing of the pendulum, which acts in medicine as well as in politics, caused the depleting system to be succeeded by its opposite—that of saturating with alcohol—which had at least this good result: it showed that exhausting measures could be dispensed with in the treatment of acute inflammation. Similarly with typhoid fever and many other disorders. Typhoid patients used at one time to have periodic doses of grey powder. Later saline draughts were chiefly relied on, haustus am-

moniæ citratis 4tis horis with cruel punctuality, as if more important than sleep or food. Great Nature's second course is sleep ; and food more germane to the matter than all the citrates of the Hesperides.

Among other modes in which our fathers played an active part where we are content to be passive I may refer to an attitude of the old physician which is occasionally to be discovered among his successors. The poet tells us that 'whatever is is right'; the physician of a bygone but unforgotten age was apt to say 'whatever is is wrong.' Nature and the physician played the parts of the Government and the Opposition ; whatever one did the other opposed. If purging occurred in the course of cholera obediently to some natural

law whereby poisons are expelled, the physician was ready with his opiates and astringents to forbid the discharge. We have not to go back many generations to find that there were those who forbade water in cholera, for no other reason which is known to us than that Nature called for it by creating thirst.

In recent days antipyretics have come into fashion, which if ever useful I take leave to think are more often injurious. If Nature raises the temperature of the body, Art is invoked to lower it, as if the danger lay in the temperature rather than in the condition which caused it. No doubt a very high temperature is in itself injurious, but it is more to the purpose to say that a person has a high temperature because he is ill

than that he is ill because he has a high temperature. I have known the body heat to touch 111° F. and recovery to occur without the employment of any special means to make it less. Let us not be in haste to attack the temperature, as if it constituted the whole or chief danger. I regard it not so much as a danger as a sign of danger. Antipyretic drugs are as a rule depressing; it may be that some who might have survived their disease have succumbed to the combined effects of the disease and its treatment. Increased temperature represents increased combustion, and occurs especially when there is a poison to be got rid of. I have often asked myself whether this destructive process is not also a purifying one

whereby offending matters in the body are burnt and purged away.

Looking back upon the energetic attempts to cure what would recover if left alone, and at the contradictory tendency to oppose with general uniformity processes not uniformly injurious, we may contrast the vain confidence of the past with the humility and subservience which for the most part characterise the methods of to-day. Without affecting to be superior to our ancestors—I am not sure, indeed, that we are in all respects their equals—we are necessarily wiser, for we have had certain generations of additional experience. Time is on our side. Pathology has become a science and the course of disease is recognised as subject to natural laws. Much of

our progress has been negative in the abandonment of what was injurious, but we may count positive gains.

Foremost among these is the trust we have learned to repose in the influences of external nature. The treatment of disease by climate has probably been practised from time immemorial, though never to the extent which our wide dominion makes now possible or in the manner which our present knowledge directs. When we consider that different organs possess different degrees of activity in different temperatures, that different diseases prevail in different regions, and that an organ which is prone to disease in one place is exempt in another, what can be more obvious than the wisdom of adjust-

ing our geography to our infirmities, and carrying a failing structure to a place where it is relieved of the stress or the tendency under which it has broken down? 'Hot and cold and moist and dry' are at our choice. The globe presents infinite variety, and, could it speak, might say with the Apostle, 'I am made all things to all men, that I might by all means save some.'

To touch upon tuberculosis, much as we have recently learned of the intimate nature of this disease, we can no more deal directly with the organisms on which it depends than we could before they were discovered. The bacillus has as yet defied germicides. It seems to be more resistant in structure and more tenacious of life than the tissues among which it

lies. We might, as the old song puts it, 'miss the bluebottle and hit the Mogul.' But without attempting to kill the bacillus *in situ* it is open to us to forbid its further admission and to fortify the tissues against such as have obtained entrance.

The treatment of tuberculosis by climate is nothing new. For over 100 years scrofula, or tuberculosis not of the lung, has been treated at Margate by exposure to the air of the North Foreland with a success which has not been attained elsewhere. Pulmonary tubercle has also long been dealt with climatically, but with a less bold appeal to fresh air. The desiderata for this condition were, in the minds of our predecessors, warmth and equability. This was distinctly formulated by 'the

great Thomas Young,' and represented the practice of 1815 and many subsequent years. Consumptives were accordingly sent to low-lying and sheltered places on the sea-coast, or were crowded into hospitals in towns where, if some of the desired conditions were present, the most important were assuredly wanting. Protection from catarrh is essential ; here we are at one with those who preceded us ; but we recognise what they did not—the paramount influence of virgin air. High altitudes and ocean expanses, together with an open-air life, even though somewhat careless, accomplish what was not attained when the chief aim was protection from cold and the invalid was surrounded with precautions lest the winds of

heaven visit his face too roughly. Now for tuberculosis of every kind we make alliance with the powers of the air, whether on the historic North Foreland or where the North Atlantic pulverises itself on the Cornish cliffs, or on the lofty levels of South Africa, where the invalid may walk in warmth and comfort at an altitude greater than that of the summits of Snowdon and Ben Nevis. I might give other examples of the tendency of the present age to enlist in our service the great forces of the external world rather than place our chief reliance upon the druggist. Bright's disease is a case in point.[1] I take a modicum of credit to myself, as one who has little to spare, for having been, so far as I know, the first to suggest the climatic

[1] *Pathology and Treatment of Albuminuria*, 1867, xvii.

mode of treating this disorder, founded on its observed infrequency in sub-tropical regions and on the principle that cutaneous activity must promote renal quiescence. Later and general experience has justified this appeal to the influences of the atmosphere, and has shown that in this respect, as in others, we can utilise the great powers of Nature which we cannot control.

To those who are in populous cities pent change of the town for the sea-shore or the open country, of foul air for fresh, comes nearer to a panacea than anything else we know of. It does good indiscriminately to all to whom it is possible to do good. The influence of atmosphere is beginning to be recognised and convalescent hospi-

tals to multiply, but among the hopes for the future is a great increase in the receptacles for active though chronic disease, where the feeble efforts of Art shall be reinforced by the overruling powers of Nature.

The third line of progress to which I must revert is the most striking example which we possess of the substitution of scientific for empirical methods. A new era is opening to us; we have learned to recognise and to isolate the essential principles of many diseases and morbid processes, and have compassed achievements, mostly in prevention, but to some extent in cure, which we ourselves must wonder at, and which our forefathers would have regarded as impossible. Much as has been done, this is little in comparison

with what will surely follow. The great series of discoveries relating to objects which are infinitely small and leading to results which are infinitely great is due to minute observation, reasoning, and experiment, and marks the replacement of empiricism by science.

The first discovery in this field was that of the bacillus of anthrax, which was recognised in 1850, though its full relation to the disease was not demonstrated until 1873. In this year was revealed the spirillum, the conspicuous organism of relapsing fever. Subsequently the essential bacilli of suppuration, erysipelas, tubercle, diphtheria, tetanus, cholera, glanders, typhoid fever, influenza, plague, and leprosy have been exposed to view. While

these intruders from the vegetable kingdom were successively showing themselves the animal kingdom was delivering up secrets of scarcely less importance to the human being. The filaria, a worm whose element is the blood, with the mosquito as *particeps criminis*, turns out to be at the bottom of some of the gravest and hitherto most incomprehensible of the diseases of the tropics. Malaria has been traced to a protozoon which obtains entrance into the blood corpuscle, and the essential cause of this ancient scourge is at last made clear. Dysentery, too, has given up its organism in the shape of the amœba which is carried in the course of the circulation from the bowel to the liver, and thus explains the direct connection between

hepatic abscess and dysentery, which has long been maintained and long disputed.

The organic generators—for such there must be—of small-pox, typhus, scarlet fever, and measles are as yet hidden, but we may be assured that they will not long remain so. It scarcely admits of doubt that every specific fever, almost all epidemics, every form of tuberculous disease, and all malarial disorders originate in living organisms introduced from without. It seems not improbable that cancer may ere long be added to the list. It may be roughly estimated that, putting aside diarrhœa, which may be due to many causes, of which organic intrusion is but one, nearly a quarter of the dwellers in these islands, and probably a larger

proportion of the race as a whole, owe their deaths to some of these forms of low life. These organisms, so humble in the scale of creation that to call most of them vegetables is a compliment, seem to make use of the exalted human body merely as a fertile region in which they may flourish and multiply irrespective of the harm they do to the field of their choice.

As to the origin of disease in extraneous organisms, one point needs to be insisted on and even emphasised. We have to reckon not only with the seed but the soil. The tissues may be receptive or resistant. There is natural immunity and natural predisposition. Some persons are proof against small-pox or scarlet fever. Some are invulner-

able to tuberculosis, while others are peculiarly susceptible to it. Though the seed fall alike upon several individuals, as, indeed, it falls upon us all more or less, it will grow in some and not in others, according to the suitability of the ground. The suitability to grow tubercle may be hereditary or may be engendered by circumstances, among which we recognise low nutrition, inflammatory action, and alcoholism, all of which fit the tissues for the entertainment of the bacillus. Let us therefore not regard the imported organism as if it were the only thing to be considered in the generation of disease.

With this proviso we may return to the bacilli and how far we can prevent or control the morbid pro-

cesses with which they are connected. Three methods present themselves:

1. Killing or excluding the microbes;

2. Establishing immunity in the individual; and

3. Employing antidotes in the shape of the antitoxins.

The use of antiseptics in surgery affords a typical instance of the first method. Suppuration depends on specific organisms introduced from the outside, and may be prevented by keeping them out or killing them. Hence has arisen a practical improvement so great that only anæsthetics can be mentioned beside it, and even these must take a second place, for it must be esteemed greater to save life than to forbid pain. This great discovery, be it

noted, was no result of chance; it was in no sense empirical, but was based upon minute research and scientific deduction. In Listerism, as it is called, we see not only a triumph of surgery but a triumph of scientific, as contrasted with empirical, procedure.

Much as has been done by the use of germicides in surgery it must be admitted that as yet we have had no corresponding success in medicine, nor have we learned to cure any of the constitutional disorders by directly attacking their bacilli. Phthisis, in which these can be reached by inhalation, appears to offer the best chance, but as yet little has been achieved. But if our present knowledge does not enable us to cure zymotic disease, it has

provided us with means of prevention which have done much and promise more.

Here open upon us the extensive subject of immunity and the great discovery of Jenner. It has long been known that certain infectious diseases—small-pox, scarlet fever, measles, and the like—do not as a rule occur more than once in the same person; they smite once and smite no more; one attack confers a protection against others. Then it seems to have become common knowledge in the dairy farms of Gloucestershire that persons who had had cow-pox did not afterwards contract small-pox. This led to the scientific practice of vaccination, to the possible extinction of small-pox, and to remote results in the field of

preventive medicine which we can partly see in the present and confidently discern in the future. How a disease protects against its own recurrence is not perfectly known and could not here be adequately discussed. Vaccination is but another manifestation of the law under which certain diseases having occurred once do not occur again. Cow-pox is a miniature small-pox — small-pox weakened by its passage through the cow. Thus a person who has had cow-pox has virtually had small-pox and cannot have it again. The use of attenuated and comparatively harmless infections as protecting against the more malignant has recently received a development which would probably fill Jenner with astonishment could he look down

on Pasteur's Institute and his own. Immunity from rabies is produced by the introduction of minute doses of the poison modified by passage through the rabbit, and this can be accomplished better late than never, though the treatment be not begun until after the bite has been inflicted. It appears that plague can be prevented by inoculation with its own products modified by heat, and similar preventive treatment has been applied to typhoid fever, though it is as yet too early to speak confidently of the results. The same may be said of cholera. Not only can a disease be prevented by its diminutive—small-pox by cow-pox—but it may also be prevented, as in the case of rabies, by establishing a tolerance of the poison without necessarily

giving rise to any disorder analogous to that which it is sought to prohibit.

How great a scope is here presented to us it is impossible to estimate; but there is nothing new under the sun. When we administer a small dose of poison to protect against a larger, or one less virulent to protect against one more virulent, we but imitate the practice of Mithridates, who, as we were taught in our youth, treated himself with small doses of poison until he was able to defy larger; and, if the tales be true, discerned on the banks of the Euphrates some of the laws of prevention which are now receiving attention on the banks of the Thames. It is said that the snake-charmers of India protect themselves from the

effects of snake-bite by drinking snake-poison.

An advance on the same field by a different process, one which deserves to be classed among the marvels of modern medicine, is to be found in the discovery of antitoxic serum, serum made prohibitive of a disease by acting upon it with material which that disease has generated. To put this briefly, and in reference to a typical case, a certain bacillus causes diphtheria ; the same bacillus secretes something which indirectly cures diphtheria. The secretion is not itself antidotal, but it imparts an antidotal property to serum which becomes effective both for prevention and cure.

When we look at what has been accomplished, and in how short a

time, in tracing diseases to their sources in foreign organisms, and at the possibilities in the way of prevention and cure which are implied, we are filled with wonder and with hope. It is not too much to predict that before long every zymotic disease, and perhaps many which we do not consider so, will be found to have an extraneous origin, and if further practical results are not obtained the future will not fulfil the promise of the past.

What with Jenner's fundamental discovery, the superadditions which modern science has built upon it, and the new modes of creating antidotes to disease by the use of its own products, we see a wide prospect of relieving the ills of mortality, limited though it be by the prejudice

of the vulgar and the subservience of politicians who value the votes of their constituents more than their lives. This brings us within sight of the 'conscientious objector,' though one does not see how conscience is concerned in a matter which is not one of religion or morality, but of expediency. The conscientious objector is himself to be objected to as one who presumes without special knowledge to decide upon a question where special knowledge is required. Ignorant he necessarily is, but he is less to blame than his betters who have endorsed his ignorance and allowed it to influence legislation. Liberty is an excellent thing, but to give liberty to spread small-pox may be thought to be carrying it too far.

Looking back over the last half-

century, I have shown how much has been done and how much undone; how we have learned to abstain from mischievous interference, how we have found in external nature remedial agencies which our predecessors very imperfectly discerned, and to how great an extent we have superseded empiricism by science.

The progress of the age has shed its light upon medicine, which, in addition to being an art, has become a science. As an art it is no longer of worse than doubtful utility. Without claiming that even yet it is always productive of good, since we must allow for human imperfection, it has ceased to be actively mischievous and become in certain definite particulars of prevention and cure

actively beneficent. Most that has been done and all that is to be confidently predicted is due to the association of medicine with science, which has only recently become possible. Old medicine, comprising as it did much random observation, false theory, and empirical practice, has given place to new medicine, with its minute investigation, exact experiment, logical deduction, and rational procedure. The chief means of modern advance has been the microscope, only of late made effective among the minutiæ of pathological life. Modern progress has been morphological rather than chemical, having to do with shape rather than with material, with organisms rather than with the elements. Liebig and his followers did much ; it was not

their fault that they did not see what was not then in sight. Born in later days, we have discovered a new world, of the existence of which they had no conception, and of which the limits are hidden from ourselves. Let us fully recognise that the end is not yet. What we deem to be advanced knowledge the next generation may regard as antiquated error. Many of our views can be regarded only as provisional, some to be developed, others to be replaced. The physician of the future may look back upon us with something of pity as those whose endeavours have fallen short in achievement, but let us hope that in his tolerant retrospect he may find that we have done something towards laying foundations on which

he has erected a glorious superstructure.

Regarding medicine as a science, if that can be called a science which is a quintessence of many, it is of all the most progressive and is that which of all others tends most directly to the benefit of mankind. Those are to be congratulated who have chosen this vocation, whether it be looked upon as an intellectual pursuit or as affording opportunities for doing good.

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